CLAIMS

I claim:

1. A digital imaging system, comprising:

an image sensor comprising a two-dimensional array of pixel elements, said image sensor outputting digital signals on a pixel bus as pixel data representing an image of a scene;

an interface circuit coupled to receive said pixel data from said pixel bus;

a frame buffer, in communication with said interface circuit, coupled to store pixel data provided by said interface circuit; and

an image processor for processing said pixel data stored in said frame buffer to generate image data for displaying said image of said scene,

wherein said interface circuit comprises a noise reduction circuit performing signal processing on said pixel data received on said pixel bus for noise reduction.

2. The digital imaging system of claim 1, wherein said noise reduction circuit performs an infinite impulse filtering operation using a fixed blending coefficient.

3. The digital imaging system of claim 2, wherein said noise reduction circuit performs said infinite impulse filtering operation by averaging multiple number of frames of pixel data provided by said image sensor using said fixed blending coefficient.

4. The digital imaging system of claim 3, wherein said noise reduction circuit calculates new pixel data for each frame of pixel data received using the equation: new data = α*input data +(1- α)*old data, where "new data" represents the final pixel data, "input data" represents the pixel data of the current frame to be averaged, "old data" represents the pixel data previously averaged, and "α" represents said fixed blending coefficient.

5. The digital imaging system of claim 1, wherein said noise reduction circuit performs a multisample averaging operation using a data and exposure time dependent blending coefficient.

6. The digital imaging system of claim 5, wherein said noise reduction circuit performs said multisample averaging operation by averaging multiple reads of the same frame of pixel data provided by said image sensor and applying said data and exposure time dependent blending coefficient.

7. The digital imaging system of claim 6, wherein said noise reduction circuit calculates new pixel data for each frame of pixel data received using the equation: new data = α*input data +(1- α)*old data, where "new data" represents the final pixel data, "input data" represents the pixel data of a current frame to be averaged, "old data" represents pixel data previously averaged, and "α" represents said data and exposure time dependent blending coefficient.

8. The digital imaging system of claim 7, wherein said noise reduction circuit further comprises a blending coefficient lookup table, said noise reduction circuit receiving previously

averaged pixel data to index said blending coefficient lookup table, said blending coefficient lookup table providing a data dependent blending coefficient for averaging said current frame of pixel data.

9. The digital imaging system of claim 7, wherein said noise reduction circuit further comprises a blending coefficient lookup table, said noise reduction circuit receiving a total exposure time value to index said blending coefficient lookup table, said blending coefficient lookup table providing an exposure time dependent blending coefficient for averaging said current frame of pixel data.